E U R O P E A N   S O U T H E R N   O B S E R V A T O R Y

Organisation Européenne pour des Recherches Astronomiques dans l'Hémisphère Austral

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VERY LARGE TELESCOPE

VLT Common Software

HP-UX Installation Manual

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1 INTRODUCTION

1.1 PURPOSE

This manual provides the installation procedure of the HP UX Operating System when used in cojunction with the VLT Software.

This document assumes that you have basic experience with system management activities for a UNIX system. The document is intended to be used as a cookbook and it does not attempt to replace the standard UNIX documentation.

1.2 SCOPE

This document describe the installation of the HP UX 10.20 when used for OCT98 version of The VLT Common Software.

This procedure has been tested on C110, C200, J210, J2240 machines. It may apply on different models as well.

The installation procedure allows selective installation.

1.3 APPLICABLE DOCUMENTS

Please read the Workstation Enhancements for HP-UX 10.20 Workstations booklet which accompanies the Install and Core O.S. CD package.

1.4 REFERENCE DOCUMENTS

The following documents are referenced in this document.

[1] VLT -MAN-ESO-17200-0888, 1.0 --- VLT SOFTWARE Overview

[2] VLT -MAN-ESO-17200-0642 1.10 --- VLT SOFTWARE Installation Manual

[3] VLT -MAN-ESO-17200-0981, 1.0 --- VLT SOFTWARE Problem Report & Change Request User Manual

1.5 ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this document:

CCS	Central Control Software
HW	Hardware
I/O	Input/Output
LAN	Local Area Network
LCU	Local Control Unit
N/A	Not Applicable
NFS	Network File System
OS	Operating System
RTAP	Real-Time Application Platform (from Hewlett-Packard)

SPR	Software Problem Report
SW	Software
TBC	To Be Confirmed
TBD	To Be Defined
VLT	Very Large Telescope
WAN	Wide Area Network
WS	Workstation

1.6 GLOSSARY

N/A

1.7 STYLISTIC CONVENTIONS

The following styles are used:

`teletype`
in the text, names of programs, files, directory, etc.
in installation examples, your typing.

`<...>`
for parts that have to be substituted with the real content before typing.

bold and *italic* are used to highlight words.

2 OVERVIEW

2.1 GENERAL

This document explains how to install HP-UX Version 10.20. Namely, it explains how to:

- install HP-UX 10.20 core
- install HP-UX patches and software extensions
- install the C/ANSI C Development Bundle
- install the Fortran 77 compiler
- install ATM cards
- configure various system files
- configure networking via Ethernet, ATM or both.

Note:

This installation can be performed on machines used for VLT development and operation for which there is an ongoing software maintenance contract.

This installation has been tested on a limited set of HW configurations. If your hardware is different, you may need a different set of data and/or CDs.

2.1.1 Hardware Requirements

CD-ROM drive
DAT tape drive
Graphics-capable screen (recommended)

2.1.2 Software Media:

Recommended Sets:

For All C and J class machines:
HP-UX 10.20 Install/Core OS Software CDROM (p/n B3782-10323, date code 3821)
HP-UX 10.20 Diagnostic/IPR Media CDROM (p/n B6191-10023, date code 3838)
HP-UX Extension Software CDROM (p/n B3782-10356, date code 3838) (only for non-ACE install)
HP-UX 10.20 Applications CDROM #2 (p/n B3782-10131, date code 3644 - Nov 96)
HP-UX 10.20 Applications CDROM #1 (p/n B3782-10350 - Oct 98) (for ATM only)

For remaining models
HP-UX 10.20 Install/Core OS Software CDROM (p/n B3782-10101, date code 3628)
HP-UX 10.20 Applications CDROM #2 (p/n B3782-10131, date code 3644)
HP-UX Patches and Extensions CDROM (p/n B3782-10096, date code 3718)

Legacy Set for C class machines (Use for Above C and J class set is recommended)
HP-UX 10.20 Install/Core OS Software CDROM (p/n B3782-10178, date code 3721)
HP-UX 10.20 Applications CDROM #2 (p/n B3782-10131, date code 3644)
HP-UX Patches and Extensions CDROM (p/n B3782-10194, date code 3726)

Note: This CD-ROMs are "bit copies" of original ones supplied by HP. Copy of the authorization is included in this distribution.

2.2 Installation Overview:

Major steps are:

- Booting and installing HP-UX 10.20 core (about 60 minutes)
- Preliminary system configuration (about 10 minutes)
- Post installation configuration (about 20 minutes)
- Installing applications (about 30 minutes)
- Installing HP patches and extensions (about 60 minutes)
- Final system configuration (about 30 minutes)

Please note that the actual time required to complete each installation step is may vary depending on your hardware.

2.3 DISTRIBUTION

This document is part of the VLT Common Software Documentation Kit and it is provided:

- as paper copy
- as PostScript files (included in the tape in the `./doc` directory).

Changes may occour after the official destribution. Please check if a more up-to-date version of this manual is available from the WEB site:

anonymous ftp.
(ftp to `ftp.hq.eso.org` to get the name of the ftp server for VLT documentation then connect to such a host and follow the instructions provided).

WWW
connect to `http://www.eso.org/vlt/vltsoft` , then select "Documentation" twice. The list of currently available documents in the ftp area is provided.

2.4 PROBLEM REPORTING/CHANGE REQUEST

Please use the procedure explained in [2].

3 INSTALLATION

The installation has been divided into steps, some of which may not apply to you. Please, take your time to skim through the whole document in order to get acquainted with the various sections.

3.1 Prerequisite information:

Before proceeding any further, gather the following information:

Which, if any, is the current system disk ________________________________
The size of the system disk (it should be at least 650Mb) __________________
The amount of installed RAM (You really need this) ____________________
The system hostname (registered in the local domain) ___________________
The system IP address (registered in the local domain) __________________
The local network's netmask ____
The local gateway hostname (should you have one) ____________________
The local gateway IP address ____
The local domain name ____
The DNS server hostname (should there be one accessible) _______________
The DNS server IP address ____
The Time Zone to be used ____
Whether the host is to remain at ESO
Whether the machine will be attached to a network
Whether there is a HP-UX net depot, what its hostname is and what the depot path is
Whether VLT is to be installed or not
If VLT is to be installed then does 'vltmgr' require a local home or an automounted home

Another imporant configuration is the disk layout. Because of the different possible cases it is impossible to provide a unique configuration. The folloiwng parameters can play a role:
- amount of RAM memory: the default is to have a swap space twice the RAM size. On HP, each swap partition can be up to 512. If more is needed, a secondary swap can be created on the same disk or on another one.
- the basic partitions (/, /stand, /opt, /tmp, /usr, /var) are created possibly on the system disk.
- the size of /opt depends from the amount of products to be installed there. The number provided is for a normal installation (C, Fortran, RTAP). More can be required for specific cases (Network Monitor, etc.)

Before starting, please define the disk layout.

3.1.1 Example

The following are the values used for a C110 with **256** MB of RAM and two disks, the internal one being 2 GB and the other 4 GB. Such values are also used as default for the installation procedure:

Disk layout:
- system disk (2 GB):

`swap` **`512`**
`/` **`120`**
/stand **48**
`/opt` **`420`**
`/tmp` **`64`**
/usr **400**
/var **480**

- application disk (4 GB)
/vlt **`1532`**
/vltdata **`512`**
/data **`2048`**

FOR ESO-BASED INSTALLS, PLEASE NOTE:

Netmasks in ESO are 255.255.255.0.
The gateway for network 134.171.12.0 is esohq-r1-atm0-12 (134.171.12.199) and for 134.171.24.0 is esohq-r1-atm0-12 (134.171.24.199). Yes, the hostname is the same.
The ESO Garching local domain is hq.eso.org.
The ESO Garching DNS server hostname is web3.
The ESO Garching DNS server IP address is 134.171.7.4.
te16 is currently a net depot for HP-UX 10.10 applications, HP-UX 10.10 patches, and HP-UX 10.20 patches only

3.2 Document conventions

Note: 0 is the number zero, and O is the uppercase letter "o".
Also note that this document may show settings both before and after you apply any modification. Don't get confused!
Text, prompts and menu titles displayed by the computer is shown in courier roman (e.g. `Press Enter to Continue`)
Text and menu selections to be entered is shown in courier bold, generally with a courier roman prompt(e.g. `#` **`sync; sync`**)
Text may include placeholders in angled brackets (e.g. **`boot`** ***`<boot_device>,`*** could be interpreted as: ***`boot scsi.2.0`***)
If a numbered sub-section specifies that only certain types of installation should do this step, then the whole of that sub-section must be completed or skipped depending on the sort of installation that is being attempted.

3.3 Installing HP-UX: Hardware Configuration

Connect up the hardware, plug everything in. Remember to terminate any SCSI connector.
Please note: if there's no graphics-capable screen attached, some sections of this document may either not apply or require different user input or commands to navigate through the text based menus. For navigation on text only screens, the TAB key is often needed to move between fields.

3.4 Installing HP-UX: Booting

This section is to be completed by all sites installing the operating system.

Insert the Install/Core-OS CDROM, Date Code 3821
If the system is already running, then log in as root and issue the command:

(ioscan -f; bdf; dmesg | grep -i phys) | lp -d <printer>
sync; sync; reboot

otherwise power on the system.

When prompted with "To discontinue press any key within 10 seconds" then press a key.

(The ioscan, bdf and dmesg provide potentially useful information about disks, SCSI ids, and memory - this information will be used later in the installation.)

When prompted with "Main menu: Enter command or menu" then issue the command:

search

Identify the CDROM drive depending on your install method, and issue the command:

boot <boot_device> (e.g., boot P1, or boot SCSI.2.0)

When prompted "Interact with IPL (Y or N)?>" enter:

N

The system then boots. If the machine has a serial terminal, rather than a graphics capable monitor installed, you will not be asked about your keyboard. You can ignore the next two paragraphs.

At the prompt "Enter the number of the language you want:" then enter the number corresponding to PS2_DIN_US_English. (normally "45")

Assuming you entered the right number then at the prompt "Please confirm your choice by pressing RETURN or enter a new number:" press RETURN.

A WARNING message may be presented, concerning B6193AA(ACE): it can be ignored. Just press any key and continue.

3.5 Installing HP-UX: Install Options and File System Configuration

This section is to be completed by all sites

.

At the “Welcome to the HP-UX installation process!” menu, select

Install HP-UX

At the “would you like to enable networking now?” prompt, respond:

n

If you have more than one hard disk installed then at the “HP-UX Install Utility - Select System Root Disk” menu, select the designated root disk and then select:

OK

At the “HP-UX Install Utility - Select Whole System Configuration” menu, select:

Standard LVM Configuration

and select

OK

At the “HP-UX Install Utility - View/Modify Whole System Configuration” menu, select the following (note that where values differ from the defaults, the defaults are shown in brackets)

Primary Swap Space (512): **512**[1] (Note: Twice the RAM installed, but no more than 512**)**
Secondary Swap Space: **None**
Software Selection (CDE Runtime Environment): **VUE Runtime Environment**
Load 10.20 SW Enhancements: (False) **True**[2]
Software Language: **English**
Locale Setting: **default (C)**
File System File Name Length: **long**
/home Configuration: **None**

If there is more than one hard disk installed then you must set the following item:

How many disks in root group: **one**

And then for all systems:

Make Volatile Directories Separate: **true**
Create /export Volume: **false**

and select OK.

At the “HP-UX Install Utility - System Configuration” menu, select:

1. if more than 512 is needed for swap, we will install it later. The secondary swap should, if possible, be on a dif ferent disk than the system disk, .
2. For all C and J class machines (which is all the Feb99 release covers)

If your system has two disks installed you need to set up the second disk.

Click “Modify Disk Parameters”

Highlight the Second disk and change the following paramters as indicated:

Disk usage: **LVM**
Volume group: **vg01**

Click on “Modify”

Now select “Modify Volume Group Parameters”

Note down the settings for volume vg00. These may well be:

> Maximum Physical Extents: 2200
> Logical Volumes: default
> Physical Volumes: default
> Physical Extent Size (MB): 4

Now highlight vg01 and change the values to match those on volume vg00.

Now click on Apply

Click OK

Click OK (Specify Disk Usage)

The following has to be done no matter how many disks there are. If you have only one volume group, you can’t use the second one, of course.

Click on “Modify FS Parameters”

At the “HP-UX Install Utility - Configure File Systems” menu:

highlight /, change the size to **120** in **vg00**, then select Modify
highlight /stand, change the size to **48** in **vg00**, then select Modify
highlight /opt, change size to **420** in **vg00**, select Modify
highlight /tmp, change size to **64** in **vg00**, select Modify
highlight /usr, change size to **400** in **vg00**, select Modify
highlight /var, change size to **480** in **vg00**, select Modify

This fills up a 2GB disk. If more space is available, you can configure this also. If you only have 256MB RAM (and hence need no more swap partitions), or if you have a second disk, then create a /diska partition and use most or all of the remaining space. It is advisable to leave some of space for the LVM to use for partition expansion at a later date. Create /diska such that 300MB is left on a 4GB disk and 1GB is left on an 8GB disk (such as those in J2240 machines).

If you do not have a second disk, but need more swap space, follow the next step, but substitute **vg00** for **vg01** in the text.

If you have **512** MB RAM (or more) you will need to create additional swap areas.

highlight swap, change **vg00** to **vg01**, then select Add.

You can add more swap partitions as appropriate.

If you are installing on a J2240 with a second disk you can also create the following partitions:

Create /vlt with **1532** in **vg01**, select Add
Create /vltdata with **512** in **vg01**, select Add
Create /data in **vg01** such that there will be 1000 MB spare space on disk, select Add

then select OK

At the “HP-UX Install Utility - View/Modify Disk, File System (FS) Configuration” menu, select:

OK

At the “HP-UX Install Utility - System Configuration” menu, select:

OK

If the “HP-UX Install Utility - Messages Dialog” box appears warning that there is already a filesystem on the disk, and you are aware of that, and you still want to continue, then select:

continue

At the “HP-UX Install Utility - Enter SD-UX Swinstall Information” menu, select:

No

and then select

OK

The install process then creates a mini-root filesystem and installs some basic software. This step might take from 5 to 20 minutes depending on your hardware configuration.

The System then installs the major components of the operating system. This process takes about sixty minutes.

3.6 Installing HP-UX: System Configuration

This section is to be completed by all sites. Regardless of the machine's final configuration, we are not going to enable networking now. Instead we will install all software bundles first. So:

After the system has rebooted, at the "Set System Parameters" window, select

No

At the "Required Information" window, specify whether this system is going to: XXXXXXXX

Yes, Continue

At the "System Hostname" window, enter the assigned hostname and select

OK (Note: Just the "host" part, not the fully qualified host name, i.e., te35 and not te35.hq.eso.org)

At the "Confirm Hostname" window, select:

yes

At the "Time Zone" window, select:

Europe

and select

OK

At the "European Time Zones" window, select:

Middle European Time/Daylight Time (Note: Select your own time zone)

and select

OK

At the "Confirm Time Zone" window, select:

yes

At the "Confirm Date and Time" window, select:

no

and at the "Date and Time" window, set the correct date and time and select

OK

At the "Confirm New Date" window, select:

yes

At the “Set Root Password” window, select:

yes

and at the “Root Password” window, follow the prompts to change the password, and at the “Root Password Accepted” window, select:

Close

At the “Configure Font Server” window, select:

Skip (Confirm) or [No]

At the System Parameters” window, select:

Close

Remember that the following commands can be used to change or complete the configuration later on:

/sbin/set_parms initial (re-initiate network installation)
/sbin/set_parms ip_address
/sbin/set_parms addl_netwrk

3.7 Configuring HP-UX: Post-Installation Configuration - Root's Home

Configuring HP-UX: Post-Installation Configuration - Root's Home
This section is optional, although to be conformant with ESO systems all sites should complete it.

Login as root

Change root's home directory by executing the following commands:

```
# umask 022
# mkdir /root
# vi /etc/passwd
```

Change root's home entry in the passwd file to /root and change the GECOS field to:

<hostname> Super User
(i.e., root:<encrypted password>:0:3:teXX Super User:/root:/sbin/sh

Then type:

(Note: If you have been using a vt100 terminal for installation, there will be no .vue* files. You do not need to edit the .vueprofile file)

```
# cd /
# mv .profile .vue* .sw /root
# vi /root/.profile
```

and add the following lines at the bottom:

```
PS1="`uname -n`# "
HISTFILE=/root/.sh_history
export PS1 HISTFILE
umask 022
```

```
If you are using a graphics monitor, also perform the following:

# vi /root/.vueprofile

add the following lines at the bottom:
```

HISTFILE=/root/.sh_history
export HISTFILE

To verify things are okay, try this **before** logging out:

```
# telnet localhost
```

and verify that you can login as root.

Note: setting the HISTFILE variable allows you to use vi-like commands on the command line. See your documentation for details.

3.8 Configuring HP-UX: Post-Installation Configuration - Peripherals and Threads

This section should be completed by all sites.

Login to the system as root, and run:

```
# sam
```

If there is a CDROM drive attached to the system, put the CORE HP-UX CDROM in the CDROM drive and select:

Disks and Filesystems

then

File Systems

then

Actions

then

Add Local File System

then click on

Not Using Logical Volume Manager

At “Select Disk to Add”, select the CDROM drive and select

OK

Set the following options:

Mount Directory: **/cdrom**
Mount now: **yes**
Mount at eveyr system boot: **yes**
Set User ID execution: **yes**

Then return to SAM’s top level menu.

Select

Software Management

then

Install to Localhost

If a note about “/var/spool/sw” gets displayed, just click on “Okay”.

Select “Local CDROM” as the Source Depot Type and click “Okay” to get rid of the note that gets displayed.

From the SD Install - Software Selection panel select:

DCEprogB.10.20DCE Programming and Archive Libraries
DCESystemAdminB.10.20DCE System Administration Utilites

(Click on the first item, the press SHIFT and, while holding it down, cick on the second item. Both items should be highlighted at this point.)

Select “Mark for Install” from the Actions menu. Both items are prepended with a “Yes” tag.

Select “Install (analysis...)” from the actions menu. After the analysis phase is complete, click on “Ok” to start the installation proper. This will take about 5 minutes. When done, becomes clickable, select it..

Note: If your application needs to use pthreads, make sure the Makefile searches for includes in /opt/dce/include/ as well.

Now close the “Disks and filesystems” window and click on the “go up” icon.

If you have a graphics monitor, then in another window perform the following:

```
# vi /etc/fstab
```

Locate the entry for the CDROM and add the option

noauto (e.g., ...ro,suid 0 0 becomes ...ro,suid,noauto 0 0)

and save and quit vi.

Now enter the command:

```
# umount /cdrom
```

If you only have a text terminal, perform the above steps by escaping to a
shell (press F7) and perform the task. Then return to SAM by typing **exit** **<return>**

3.9 Kernel Configuration: Parameter Upgrades and Tape Driver

From the top level of SAM, regardless of whether or not there is a DAT drive attached to the system, select:

Kernel Configuration

and then:

Drivers

If ‘stape’ is not already marked as ‘in’, then highlight it and select:

Actions

then select

Add Driver to Kernel

Now, select list from the top menus.

From the list menu select “Configurable Parameters”

Two kernel paramets need to be updated. Change the following values

Warning: The number is in hexadecimal representation. (e.g. 0x10,000,000 = 256 MB)

`maxdsiz`	(at least half the RAM, and no less than 128 MB)
`nproc`	(20+20*MAXUSERS)

To make the all the changes effective, select

Create new Kernel

and at the “Confirmation” window select:

Yes

At the “reboot the system” window, select:

Move kernel into place: yes
Overwrite /stand/system: yes

and select:

OK

If a notice window appears, just select:

OK

The system will then reboot

3.10 Configuring HP-UX: Installing the Quality Pack (ACE) or Patches and Extensions

This section should be completed by all sites.

Reboot the system. Then log in as root:

Having installed ACE - “Load 10.20 SW Enhancements: True” in Section 3.5, we now need to install the Quality Pack - a collection of patches and extensions known to work with ACE. Do **NOT** install any other patches other than those specifically detailed in this install manual.

To install the quality pack:

Load CD Diagnostic/IPR Media” Date Code 3838

Type:

```
# mount /cdrom
# swinstall -s /cdrom/XSW700HW1020
```

Select the product listed: XSW700HW1020

then select

Actions

then Install (analysis)

When “OK” becomes clickable, then select:

OK

You may well be asked to confirm that the machine will be rebooted after the installation. Click

OK

At the “Confirmation” window, select:

Yes

When “done” becomes clickable, then select:

done

The machine should reboot. If it doesn’t, do so using **sync;sync;reboot**

3.11 Installing HP-UX: The ATM Subsystem Installation

This section can be skipped if you are not installing ATM on your system.

You will require:

The ATM card: HP ATM Adapter J2498A incl. license J28xxxx AHN
The Applications HP-UX 10:20 CD 1 of 4 Date Code 3838 (Or copy provided with VLT Feb99 CDs)
The HP ATM Patches, from Feb99 VLT Patches CD Date Code 3902, or obtained via FTP

If you do not have the CD, the contents - untarred - are available via anonymous FTP from the following places:

ftp.eso.org in directory hppatches

Download all the files. If you have problems with ftp to these machines contact ftphelp@eso.org or vltteam@hq.eso.org

Installation of the patches will be dealt with in section 3.12.

Install the card as specified in the ATM documentation which came with the card, then reboot the machine.

Insert application CD number 1 of 4 in the CDROM drive. Log in as root and type:

mount /cdrom

then type:

swinstall -s /cdrom

select the package J28xxxx (the last numbers may vary, the J28 will not)

select **action** from the top menu and **install** from the action menu

When “OK” becomes clickable, then select:

OK

You may well be asked to confirm that the machine will be rebooted after the installation. Click

OK

At the “Confirmation” window, select:

Yes

When “done” becomes clickable, then select:

done

The machine should reboot. If it doesn’t, do so using sync;sync;reboot

3.12 Installing the VLT FEB99 Patches (For OS, ATM and Year 2000)

There are several ways to obtain and install the ESO specified patches.

Obtaining the patches:

The patches are distributed on CD-ROM from ESO. The CD is labelled "VLT PATCHES OS,ATM,Y2K" Date Code 3902.

If you do not have this CD, the contents - untarred - are available via anonymous FTP from the fol lowing places:

ftp2.hq.eso.org in directory vltfeb99/hp/patches
ftp.eso.org in directory vltfeb99/hp/patches

You can either download the files to another machine and create the tape by tarring up these files and the following the instructions below, or else enable the networking on the machine first -- see section 3.6 -- then return to this point and continue. For an ATM only configuration we strongly recommend using the CD, since otherwise you will need to disable the standard network later.

If you have enabled networking on the installation machine:

Create a directory **/patch** and download all the files into it. If you have problems with ftp to these machines contact ftphelp@eso.org or vltteam@hq.eso.org

If you have the VLT PATCHES CD then:

When the system login prompt appears, log in and insert the CD. Type:

mount /cdrom

Create a directory **/patch** and type:

cd /patch; tar vfx /cdrom/*

By either method, you should now have a patch directory with two directories inside it. One is called VLTPATCH contains many **PHxxxxx** files a **make_depot** file and a **patch_list** file inside it. This is the OS and ATM patch set. The other Y2KPATCH contains (surprise, surprise) the Year200 patch set for ther FEB99 release.

First we need to install the OS and ATM patches (even if we do not have ATM).

We have made it easy to install all the patches at once by creating a depot from which to install the patches. Run the following commands:

cd /patch/VLTPATCH

./make_depot

This will unpack all the patches and install them in a depot under **/var/spool/sw**

Now run:

swinstall -s /var/spool/sw

Select all the patches. If you are using a terminal use <shift> <spacebar> to select the next package without deselecting the previous ones. If you are using a Graphics Monitor, use <shift> as you click on each successive patch.

Click on Install (analysis) under the action menu

When “OK” becomes clickable, then select:

OK

You may well be asked to confirm that the machine will be rebooted after the installation. Click

OK

At the “Confirmation” window, select:

Yes

Note: The system will provide a number of warnings about various patches. These can be ignored as not all the patches will be needed (we usually find 10 or 11 will be installed depending on whether we have ATM)

When “done” becomes clickable, then select:

done

The machine should reboot. If it doesn’t, do so using sync;sync;reboot

Important: **YEAR 2000 Patch installation**

Once the OS and ATM patches have been installed and the machine rebooted we need to install the Y2K patch set. If the procedure for obtaining the patches was followed, there should be a directory called /patch/Y2KPATCH. Inside this directory should be a tar file with a name beginning- Y2K-1020

from the command line. Issue the command:

swinstall -x autoreboot=true -x match_target=true -s /patch/Y2KPATCH/*

This should install the Y2K patch set correctly.

Once the install has finished, we can verify that the software has been updated by running:

/usr/sbin/swlist

This should list each patch installed during the OS and ATM update, as well as the Y2K-1020 patch bundle. You will also see listed the DCE upgrades we performed earlier.
Remove /patch directory othervise root logical volume is full.
rm -rf /patch

Reboot the machine to finish this section.

3.13 Installing HP-UX: Applications Installation

This section must be completed by all sites.

Insert the application media in the CDROM drive.

Log in as root.

Type the command:

```
# mount /cdrom
```

Now type:

swinstall -s /cdrom

If a “note” window appears then select:

OK

Select

Actions

then

Add New Codeword

and add:

Customer ID: 83111472300010001
Codeword: JD/C 7FTF DTRZ 3N14

then repeat using:

Customer ID: 8340ESO M/9-04 (there’s a space between ESO and M/9-04!)
Codeword: CG/C HF76 NVD2 8Y9G

Then select:

OK

Highlight the following products (Press “Shift” while selecting):

B3898AA_APZ HP C/ANSI C Developer’s Bundle
B3906AA_APZ HP FORTRAN
B4474EA_APZ ENWARE

then select

Actions

then

Mark for Install

If an “Error” window appears then just select:

OK

Select:

Actions

and

Install (analysis)

When “OK” becomes clickable, then select:

OK

At the “Confirmation” window, select:

Yes

When “done” becomes clickable (about 20 min.), then select:

done

exit SAM and in a separate window run:

umount /cdrom

Now type:

```
# cd /tmp
# cc -Aa
```

Expect only:

/usr/ccs/bin/ld: Unsatisfied symbols:
main

3.14 Installing HP-UX: Network Configuration

This section is to be completed by all sites. It assumes that your system will be connected to a network and you have gathered the information mentioned previously. However, it's possible to connect to a network and configure it later on. If you are going to install ATM, please check section 4 first, before installing networking.

After the system has booted, type:

/sbin/set_parms initial

At the "Required Information" window, specify whether this system is going to:

Yes, Continue

At the "System Hostname" window, enter the assigned hostname and select

OK (Note: Just the "host" part, not the fully qualified host name, i.e., te35 and not te35.hq.eso.org)

At the "Confirm Hostname" window, select:

yes

At the "Time Zone" window, select:

Europe[1]

and select

OK

At the "European Time Zones" window, select:

Middle European Time/Daylight Time (Note: Select your own time zone)

and select

OK

At the "Confirm Time Zone" window, select:

yes

At the "Confirm Date and Time" window, select:

no

and at the "Date and Time" window, set the correct date and time and select

OK

1. For Paranal use UTZ, equivalent to Greenwich.

At the “Confirm New Date” window, select:

yes

At the “Set Root Password” window, select:

yes

and at the “Root Password” window, follow the prompts to change the password, and at the “Root Password Accepted” window, select:

Close

.

At the “System Internet Address” window, enter the system’s designated IP address and select

OK

At the “Confirm Internet Address”, select:

yes

At the “Additional Network Parameters” window, select:

yes

At the “Subnet Mask and Gateway” window enter the designated subnet mask, the designated gateway’s hostname, and the designated gateway’s IP address and select

OK

At the “Confirm Network Parameters” window, select:

yes

At the “Domain Name System” window enter these values (ESO Garching only):

Local Domain Name: **hq.eso.org**
DNS Server’s Hostname: **web3**
DNS Server’s IP Address: **134.171.7.4**

then select OK

Note: be sure to use the right values for your site!

At the “Confirm DNS Parameters” window, select:

yes

ESO Paranal: click CANCEL (No DNS is being used for the moment)

Other sites: use one of the above, but with proper local values.

At the “Register name with name server” window, select:

Close

At the “Network Information Service” window select::

No

At the “Configure Font Server” window, select:

Skip (Confirm) or [No]

At the System Parameters” window, select:

Close

Remember that the following commands can be used to change or complete the configuration later on:

/sbin/set_parms initial (re-initiate network installation)
/sbin/set_parms ip_address
/sbin/set_parms addl_netwrk

3.15 Configuring HP-UX: Network Service Configuration

This section is to be completed by all sites

Before starting this section, you need to to enable your network interface. If your **only** network interface is ATM, please refer to Chapter 4 to complete the ATM installation before proceding with this section.

If you need to enable networking, log in as root and type the following command. Again, if your only network interface is ATM, you should follow the steps in Chapter 4 under Lan Emulation to enable networking.
:

```
# /sbin/set_parms initial
```

Now follow the steps described on Chapter 3.13

Once networking has been enabled, type:

sam

Select

Networking & Communications

then

Name Service Switch

and, by highlighting each entry in turn and selecting

Actions

and then

Configure Name Service Switch

set up the search order to be as follows:

hosts: /etc/hosts, DNS, none[1]
if information is not found: try next source[2]
if information is not configured: stop searching
protocols: /etc/protocols, none
services: /etc/services, none
networks: /etc/networks, none
netgroup: /etc/netgroup, none
rpc: /etc/rpc, none

Then return to sam's main menu.

If the machine is to remain in ESO then select:

---

1. if DNS is not installed: /etc/hosts, none
2. if DNS is not installed: stop searching

Time

then

NTP Network Time Sources

then

Actions

then

Add remote server or peer

When the “note” window appears explaining that there are no peers or servers at the moment, then select:

OK

Then select:

Actions

and then:

Add remote server or peer

and specify:

hostname: te13
relationship: server
preferred: yes
NTP version: 3

and then select:

OK

Then select:

Actions

and then:

Start NTP

then exit sam.

Reboot with

```
# sync; reboot
```

3.16 Configuring HP-UX: Extra Disks (Can be skipped, if vg01 has been already configured earlier)

This section need to be completed only if there is more than one hard disk (internal or external) on the system.

Run:

sam

and select:

Disks and Filesystems

then

File Systems

then

Actions

then

Add Local File System

then

Not Using the Logical Volume Manager

and create a file systemthe candidate disk. Mount it as:

/diskb

and accept the other defaults.

If a “confirmation” window appears then select:

continue to create a new file system

Repeat for any additional disks, mounting them as /diskc, /diskd, etc.

Return to sam’s main menu.

3.17 Configuring HP-UX: Assorted Network and User Related Files

Each site should work through this section, though not all bits are relevent to all sites. Hints are given, but must be considered as such.

Issue the following commands:

```
# ftp <another_vlt_host>
Name (root): root
Password: <root's_password>
```

All sites should then do:

```
ftp> lcd /etc
ftp> cd /etc
ftp> get auto_master
```

If VLT is to be installed then do:

```
ftp> get shells
ftp> get PATH
ftp> get MANPATH
ftp> get csh.login
ftp> get profile
ftp> lcd /bin
ftp> cd /bin
ftp> get tcsh
ftp> !chmod 555 tcsh
```

In another window run:

```
# vi /etc/group
```

and add the following entry:

vlt::300:vltmgr

If VLT is to be installed and vltmgr wants the existing home then run:

```
# vi /etc/passwd
```

and add the following entry:

vltmgr::450:300:VLTMGR,,,:/home/vltmgr:/bin/tcsh

Ensure that this host is given access to the disk on the real home machine.

If VLT is to be installed and vltmgr wants a local home then run:

```
# vi /etc/passwd
```

and add the following entry:

vltmgr::450:300:VLTMGR,,,:/home/disk<diskletter>/vltmgr:/bin/tcsh

(If the machine is to remain at ESO, keep the password file the same as for a non-local user, but remember to change the automount entry in /etc/auto_home)

and create a home directory with:

```
# mkdir /disk<diskletter>/vltmgr
# chown vltmgr:vlt /disk<diskletter>/vltmgr
# chmod 750 /disk<diskletter>/vltmgr
```

Remember to change the password for the vltmgr account.

If the machine is to have VLT installed and it is to remain at ESO, then create a 'vlt_tmp' directory under each of these new file systems, plus under /diska if it exists as follows:

```
# for DISK in /disk?; do
> mkdir $DISK/vlt_tmp
> chown vltmgr:vlt $DISK/vlt_tmp
> chmod 775 $DISK/vlt_tmp
> done
```

If the machine is to remain at ESO then do:

```
ftp> lcd /etc
ftp> cd /etc
ftp> get hosts
ftp> get auto_home
ftp> get auto_direct
ftp> get hosts.equiv
ftp> get passwd passwd.new
```

Carefully merge the old and the new password files.

Verify that other hosts have this new host in their exports lists where necessary.

If the machine is to have local homes then now run:

```
# for DISK in /disk?; do
> mkdir $DISK/home
> done
```

With the June 98 OS release (Date Code 3821), SAM does not work in configuring the automounter. This is due to the automounter being controlled via autofs, which SAM doesn't understand. To get around this, we need to edit the file by hand. Type:

vi /etc/rc.config.d/nfsconf (change values to)

NFS_CLIENT=1
NFS_SERVER=1
NUM_NFSD=4 (for intensive NFS active machines set to 8 or 16)
NUM_NFSIOD=4 (for intensive NFS client machines set to 8)

At the bottom of file the following values may need to be set

START_MOUNTD=1

AUTOMOUNT=1
AUTOMOUNT_OPTIONS=
AUTOMOUNTD_OPTIONS=

If not already in sam then run:

```
# sam
```

and select:

Networking and Communications

then

Network File Systems

then

Exported Local Filesystems

and add /diska/home, diskb/home, ...

Set the access list to include the host itself (also include localhost as a machine)

Before logging out, again verify that root can successfully log in to the system:

```
# telnet localhost
```

Reboot the system to start the automounter properly

reboot

Note: If you experience problems with exporting disks to hosts it may be useful to edit the /etc/exports file by hand. Edit the file and remove all the extra data after the filesystems:

/diska
/diskb

save the file and type:

exportfs -a

Note Warning: This method is inherently insecure, but it will allow access to disks from ANY host.

3.18 Configuring HP-UX: Adding Support for ESO-style Centralisation

This section should be completed only for hosts that are to remain in ESO.

On te16 ensure that the new host is added to the exports list for /usr/server and /software.

On the new host run:

vi /etc/auto_direct

and make sure there are the following entries:

te13:/usr/server /usr/server nfs ro,suid,soft,bg 0 0
te13:/software /software nfs ro,suid,soft,bg 0 0
te13:/vltsccm /vltsccm nfs ro,suid,soft,bg 0 0

3.19 Floppy mounting from HP X-terminals

A problem of HP X-terminals not mounting their internal floppy need to be fixed.

There was a change in HP's "mount" command, from HP-UX 9.x to HP-UX 10.x. Ie. options to this command should for HP-UX 10.x come *before* the device file and mountpoint. This means the file /usr/bin/X11/700X/admin/mountfloppy needs to be edited:

replace line 290

hp*) mount $THISTERM:/$FFS $MOUNTPOINT $OPTIONS ;;

by

hp*) mount $OPTIONS $THISTERM:/$FFS $MOUNTPOINT ;;

3.20 Enabling double-screening

In case the workstation is double-screen:I
append to the file /usr/lib/X11/X0screens the line:

Screen /dev/crt1

and append to the file /usr/vue/app-defaults/Vuewm the line:

Vuewm*multiScreen:true

3.21 Installing VLT

Installation of VLT is done by vltmgr. (Werther Pirani or Giorgio).. Contact them

3.22 Handover: Changing Basic Network Parameters

This section should be completed if the machine will now be moved to a new network.

Run the following commands and follow the prompts:

```
# /etc/set_parms hostname
# /etc/set_parms ip_address
# /etc/set_parms addl_netwrk
```

4 ATM Installation and Configuration

Many ATM-equipped deveces are foreseen on the VLT Control LANs. We summarize here the installation and Configuration Procedure.

4.1 HW / SW REQUIREMENTS

- HP ATM Adapter J2498A incl. license J28xxxx AHN
- The software for HP-UX 10.20 and Sun/Solaris 2.4

  All the software is on file atm.tar.

  The original software for HP is J28xxxx which can be found on OCT 98 Applications CD 1 of 4 CD Part Number: B3782-10350. You also need to get the patches from
  - VLT FEB99 VLT PATCHES CD Date Code 3902" (available from ESO)
  - FTP all files from ftp.eso.org (or ftp2.hq.eso.org) in **vltfeb99/hp/patches** directory

4.2 DOCUMENTATION

- [1] HP-HSC/PB ATM/155 Adapters - Configuration & Troubleshooting Guide
- [2] HP ATM / 155 Adapter - Hardware Installation Guide
- [5] VLT-SPE-ESO-17120-1355 1.1 04/03/98 --- Final Lay-out of VLT Control LAN's

4.3 POSSIBLE CONNECTIONS

The ATM back-to-back connection is used as a direct high-speed data link between the Sparc and HP. The ATM interfaces are configured with "Classical IP over ATM" and are connected back-to-back with a fibre crossing the transmit and receive sockets. To run this protocol the ATM interfaces are on a different subnet than the ethernet interfaces i.e. they are on a dedicated subnet. Both nodes are configured as ATM ARP Servers (see also HP Configuration Guide, Chapter "Creating a back-to-back connection" and "Back-to-back with non-HP systems").

4.4 Installation

- Install the ATM Adapter card (product # J2498A) into an EISA or GSC slot
- Boot the machine, login as root.
- Install the J28xxxx software as described in section 3.11
- Install the patch set as described in section 3.12. Patches which have already been installed will not be re-installed, so proceed as with the instructions.
- Reboot the machine
- Configure the interface as described in the next two sections

4.5 Configuring the HP ATM Interface for Switch/Router connection

4.5.1 Configuring LAN Emulation

This is the protocol foreseen over the VLT LANs and the configuration procedure is the following:

- As root call SAM and select the Network Interface Cards icon from the Networking/ Communications window (see also HP manual "Configuring the ATM Adapter").
- Highlight the ATM entry, Goto **Action**, Select **Configure**
- (If this is not the first time the configuration is done -> On the new window: Goto **Action**, Select **Configure ATM Card Parameter)**
- The following parameters must be entered:

  Physical Layer: Sonet

  Network Prefix: From Network

  UNI Version 3.1

  If the connection is working properly then the link light on the ATM card will be out and the Netwrok Prefix will be greyed out with the numbers already entered. If there are no numbers in this box, then the connection is not correct.

- Goto **Action**, Select **Add Elan Interface.** The following parameters must be entered:

  IP Address: The address of the local machne as seen from the ATM Interface

  Start at Init: Yes

  Subnet mask: 255.255.255.0

  MTU size: 1516

  ELAN MAC Address: Default

  Primary LECS: From Network (The related long number will not be displayed but the Router should send it to the machine. Problem in this phase can be detedted because it will not be possible to enable the related elan)

  LEC Selector: is related to the subnet, ie the subnet number, (see [5]) in wich the machine lies, see table 1 (Those setting can eventually change, please check with the Net Adinistrator)

  ELAN Name: name of the subnet as it appear on the Lay-out of VLT Control LANs (For example for the uves instrument: uv)

  Secondary LECS: don't care

- **NOTE:** Remember that if the machine was previously using another interface (ex 10 BaseT Ethernet) and was on a different subnet, you need to change the default gateway and/or name and address using the command:/sbin/set_parms. **Don't make the mistake of configuring the ethernet interface and the ATM interface with the same address, no error will be reported but nothing will work.. If the eternet interface was previously using the address that now you want to assign to the ATM, disabling the Ethernet is noth enough, you MUST explicitly configure the Ethernet interface using another subnet, if you need to keep using it, or setting the dummy address 0.0.0.0 before disabling it**.

table 1

Subnet/ Selector	Subnet/ Selector	Subnet/ Selector	Subnet/ Selector	Subnet/ Selector
as / 2	si / 10	aa2 / 18	t2 / 26	uc / 34
co / 3	ta / 11	a3 / 19	t3 / 27	
cr / 4	tb / 12	a4 / 20	t4 / 28	
f1 /5	uv / 13	r1 / 21	gs / 29	
f2 / 6	vi / 14	r2 / 22	u1 / 30	
fu / 7	vm / 15	r3 / 23	u2 / 31	
is /8	vs / 16	r4 / 24	u3 / 32	
ni 9	a1 / 17	t1 / 25	u4 / 33	

4.5.2 Configuring Networking for ATM ELAN only.

If you are going to use ATM as your only network interface and you need to perform three steps.

Step1: Configure the ela0 interface as described in section 4.5.1. This will allow you to access all machines on the same subnet as the installed machine.

Step2: Follow the instructions in section XXX as if you were installing standard networking. When you get to the DNS section, you will get a warning from the system since it will not be able to connect to the DNS server. This warning can be ignored. You will also receive a warning about the procedure being only for the standard interface. Ignore this too.

Step3: After configuring networking, you need to switch the interface which the machine uses by default. Perform the following:

```
# cd /etc/rc.config.d
# vi netconf
```

change the INTERFACE_NAME[0] line to read:

```
INTERFACE_NAME[0]=ela0
```

close the file and reboot the machine. You should be able to ping machines lying off your subnet.

4.5.3 Configuring Cassical IP over ATM

This is a faster protocol that is still under investigation. In case you need to test it, the configuration procedure is the following:

- As root call SAM and select the Network Interface Cards icon from the Networking/ Communications window (see also HP manual “Configuring the ATM Adapter”).
- Highlight the ATM entry, Goto **Action**, Select **Configure**
- On the new window: Goto **Action**, Select **Configure ATM Card Parameter**
- The following parameters must be entered:

  Physical Layer: Sonet

  Network Prefix: From Network

  UNI Version 3.1
- Goto **Action**, Select **Add IP Interface.** The following parameters must be entered:

  IP Address: (appropriate test address)

  Subnet mask: 255.255.255.0

  MTU size: 9180

  Node Type: ATM ARP Client Node

  ATM Address: Address of the local swicth (from your Net Administrator)

4.6 Configuring the HP ATM Interface for back to back Connection

- As root call SAM and select the Network Interface Cards icon from the Networking/ Communications window (see also HP manual "Configuring the ATM Adapter").
- Action "Configure"

  Action "Configure ATM Card Parameter"

  Physical layer: sonet
  Network prefix manual entry
  Card ATM address: 47009181000000006183c57701
  UNI Version: 3.1

  Action "IP Interface" - don't select "Advancecd"
  "
  Subnet mask: 255.255.255.0
  Enter IP address
  Node Type: ATM ARP Server node
  Start at Init: Yes

  Action "Configure PVCs"
  Add...

  MTU size: default 9180
  VPI = 0
  VCI = 103
  Destination IP address: (to Sparc)
  Traffic Type: UBR - Unspecified
  Peak Rate: 155 Mbit/s
  -no LAN Emulation - "Classical IP over ATM" must be configured

4.7 TESTING THE INSTALLATION

The are a number of troubleshooting and diagnostic hints in the ATM Manuals. After connecting the ATM fibre one should ping the ATM IP numbers, run ifconfig, netstat -nr
Finally one can run `dxfBenchmark` to test the performance.

___oOo___